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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,855	09/29/2000	Gary Dan Dotson	00AB147 (81696/235)	9316

7590   10/03/2003

Rockwell Technologies, LLC
Attention: John J. Horn
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EXAMINER
TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _27 May 2003_ .

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1 and 3-23_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _11-23_ is/are allowed.

6)☒ Claim(s) _1 and 3-10_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _27 May 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _4_ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Drawings

1.   The drawings were received on 27 May 2003. These drawings are accepted.

Specification

2.   In view of the current amendment to the specification, the Examiner withdraws all

objections to the specification.

Response to Arguments

3.   Applicant's arguments with respect to claims 1 and 3-10 have been considered

but are moot in view of the new ground(s) of rejection. Note: Applicant's amendment

necessitated the new ground(s) of rejection presented in this Office action. Accordingly,

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the

extension of time policy as set forth in 37 CFR 1.136(a).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
patent by another filed in the United States before the invention by the applicant for patent, except that an
international application filed under the treaty defined in section 351(a) shall have the effects for the purposes
of this subsection of an application filed in the United States only if the international application designated the
United States and was published under Article 21(2) of such treaty in the English language.

4.   Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Wolf, Tod (US

6385751 B1).

35 U.S.C. 102(e) rejection of claim 1.

Wolf teaches a system (the device in Figure 5 is a system) comprising: a general

purpose DMA controller (Memory/Peripheral Interface 145 in Figure 5 is a general

purpose DMA controller), the general purpose DMA controller being configured to

control a plurality of different types of DMA transfers between a plurality of different

combinations of a plurality of different types of hardware resources (col. 6, lines 2-5 in

Wolf teach that Memory/Peripheral Interface 145 in Figure 5 controls data exchange

with memory and peripherals, i.e., different types of hardware resources such as

Execution units 132, 143, 136, 138, 140 and 142 in Figure 5 of Wolf); an arithmetic unit,

the arithmetic unit being coupled to receive data from a general purpose DMA controller

(see Reed-Solomon Coprocessor in Figures 4 and 5 with Encoder 457 and Decoder

458 in Figure 4 of Wolf, Note: in col. 2, lines 32-35 Wolf teaches that Reed-Solomon

encoders/decoders use Finite Field arithmetic called Galois Field arithmetic hence

Reed-Solomon encoders/decoders are arithmetic units, in particular, the Reed-Solomon

Coprocessor in Figures 4 and 5 is an arithmetic unit; in col. 8, lines 63-64, Wolf teaches

that the Reed-Solomon decoder part of the Reed-Solomon Coprocessor is designed to

receive data from a general purpose DMA controller), the arithmetic unit generating an

error checking value based on the data received from the general purpose DMA

controller and based on a polynomial equation (Reed-Solomon decoders inherently

generate error checking values based on a polynomial equation, see col. 3, lines 24-27

and col. 5, lines 16-26 in Wolf; in addition, in col. 8, lines 30-31, Wolf teaches that data

is received from the DMA); and wherein the arithmetic circuit is capable of being

programmed with a plurality of different polynomial equations usable to generate error

checking values of different types (Wolf teaches that the Reed-Solomon Coprocessor

uses a generator polynomial $\gamma(x)$ to create different generator polynomials $\gamma(x)$ by

varying j_0 {see col. 3, lines 24-46, Wolf}. Note: the Reed-Solomon decoder must use

the same generator polynomials $\gamma(x)$ in order to generate syndromes {col.4, lines 59-66,

Wolf} which are defined as the remainder derived by dividing the received codeword by

the generator polynomial.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.

4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

5.   Claims 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf, Tod (US 6385751 B1) in view of McSpadden, Jeff R. (US 4216540 A).

35 U.S.C. 103(a) rejection of claim 3.

Wolf, substantially teaches the claimed invention described in claims 1 and 2 (as rejected above).

However Wolf, does not explicitly teach the specific use of a linear feedback shift register capable of being modified based on a particular generator polynomial. McSpadden, in an analogous art, teaches a linear feedback shift register capable of being modified based on a particular generator polynomial (see Figure and Abstract in McSpadden, specifically, see feedback control 28 in McSpadden). The Examiner would like to point out that Wolf teaches an arithmetic unit that requires use of a means, capable of being modified according to a specific generator polynomial, for generating code and syndromes based on the specific generator polynomial. One of ordinary skill in the art at the time the invention was made would have recognized the McSpadden provides the means necessary to implement the arithmetic unit in Wolf.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wolf with the teachings of McSpadden by including a linear feedback shift register capable of being modified based on a particular generator polynomial. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would

have recognized that a linear feedback shift register capable of being modified based on

a particular generator polynomial would provide the opportunity to implement the

arithmetic unit in Wolf by providing specific required elements for implementing the

Arithmetic unit in Wolf.

35 U.S.C. 103(a) rejection of claim 4.

See 12 in the Figure in McSpadden.

35 U.S.C. 103(a) rejection of claim 5.

Shift registers 22 along with accompanying circuitry such as multiplexers 12 in

McSpadden comprise programmable shift registers.

35 U.S.C. 103(a) rejection of claim 6.

The polynomials cited in claim 6 are the result of selecting appropriate "Galois Field"

parameters (see col. 2, lines 30-31, Wolf).

35 U.S.C. 103(a) rejection of claim 7.

Wolf teaches Reed-Solomon encoders/decoders use Finite Field arithmetic, which is

sometimes called Galois Field arithmetic and includes addition, multiplication, **division**

(col. 2, lines 32-34, Wolf).

35 U.S.C. 103(a) rejection of claim 8.

Reed-Solomon Code is Cyclic code, hence a Systematic Reed-Solomon code is a CRC code. In column 3, line 30, Wolf teaches how to generate a Systematic Reed-Solomon code, i.e., a CRC code.

35 U.S.C. 103(a) rejection of claim 9.

See polynomial generator in column 3, lines 35-36 in Wolf. Note: in Wolf the design requires a setup register (col. 8, lines 24-25, Wolf) which requires j0 in the polynomial generator in column 3, lines 35-36 in order to implement the design in Wolf.

35 U.S.C. 103(a) rejection of claim 10.

See DSP in Figure 5. Note: the Memory/Peripheral Interface 145 in Figure 5 is **capable** of controlling DMA communications to peripheral devices.

Allowable Subject Matter

6.   Claims 11-23 are allowed.

Conclusion

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
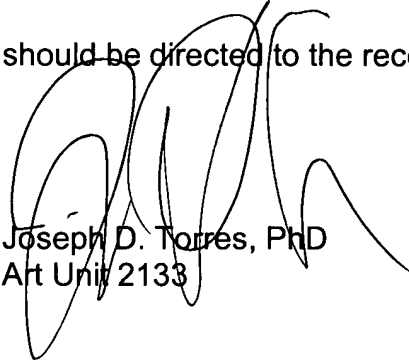
A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

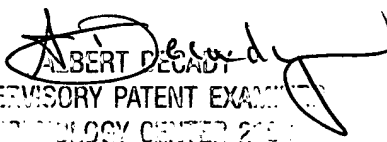than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joseph D. Torres whose telephone number is (703)

308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number

for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703)-746-7240.

Joseph D. Torres, PhD
Art Unit 2133

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